

Amendments to the Claims:

This listing of the claims will replace all prior versions, and listings, of claims in the application:

Listing of Claims:

1. (Previously Amended) A computer-implemented method for generating a musical part from an electronic music file comprised of pitched instrumental parts, the method comprising:

generating a control stream that indicates which of the instrumental parts has a highest value for each of a plurality of periods of time, wherein generating the control stream involves for each of the plurality of periods of time comparing a contribution of one instrumental part for that period of time to a contribution of another instrumental part for that period of time and wherein generating the control stream is based on a cost of switching between the one instrumental part and the other instrumental part;

for each of said plurality of periods of time, selecting one of the instrumental parts for that period of time based on the control stream; and

outputting the selected instrumental part for each of said plurality of periods of time to produce the musical part.

2. (Original) The method of claim 1, wherein generating the control stream involves determining for each of said plurality of periods of time which of the instrumental parts has a highest value for that period of time and involves for each of said plurality of periods of time examining other periods of time defined by the electronic music file.

3. (Canceled)

4. (Canceled)

5. (Original) The method of claim 1, wherein generating the control stream comprises:

obtaining measurement streams which include values for corresponding instrumental parts; and

identifying for each of the plurality of periods of time an instrumental part in the measurement streams that has the highest value for that period of time.

6. (Original) The method of claim 5, wherein obtaining the measurement streams includes analyzing aspects of the musical part.

7. (Original) The method of claim 6, wherein the aspects include one or more of strum speed, average pitch, polyphony, loudness, and a vocal part.

8. (Original) The method of claim 5, wherein generating the control stream further comprises merging the measurement streams to obtain a composite measurement stream, and the instrumental part in the measurement streams that has the highest value for each period of time is identified by using the composite measurement stream.

9. (Original) The method of claim 1, wherein the electronic music file comprises a Musical Instrument Digital Interface (MIDI) file.

10. (Canceled)

11. (Original) The method of claim 1, wherein each instrumental part comprises a stream of events, each event in the stream of events having a time stamp, and wherein the method further comprises changing time stamps of events that are within a predetermined time period of each other so that the time stamps are the same.

12. (Original) The method of claim 1, wherein generating is performed using a chooser object and selecting and outputting are performed using a switcher object.

13. (Currently Amended) ~~A computer implemented method for generating a musical part from an electronic music file, the~~ The method of claim 1, further comprising:

for each of a second plurality of periods of time, identifying a plurality of patterns in the electronic music file; and

for each of said second plurality of periods of time, selectively combining multiple of said plurality of identified patterns for that period of time to produce the musical part, wherein patterns having relatively low frequencies are combined to produce the musical part before patterns having relatively high frequencies are combined.

14. (Original) The method of claim 13, wherein the patterns comprise individual instrumental tracks in the electronic music file.

15. (Original) The method of claim 13, wherein selectively combining for each of said plurality of periods of time comprises:

selecting one of the identified patterns;

determining if a rhythmic complexity of the selected pattern exceeds a predetermined threshold; and

adding the selected pattern to the musical part if the rhythmic complexity of the selected pattern does not exceed the predetermined threshold.

16. (Original) The method of claim 15, wherein selectively combining for each of said plurality of periods of time further comprises discarding the selected pattern for that period of time if the rhythmic complexity of the selected pattern exceeds the predetermined threshold.

17. (Original) The method of claim 15, wherein the rhythmic complexity of the selected pattern is determined based on musical features of the selected pattern.

18. (Original) The method of claim 17, wherein the musical features comprise one or more of a beat of the selected pattern, syncopated notes in the selected pattern, and proximity of notes in the selected pattern to other notes in the selected pattern.

19. (Original) The method of claim 13, wherein selectively combining for each of said plurality of periods of time comprises:

selecting one of the identified patterns;
determining if the selected pattern is similar to a pattern already in the musical part; and
adding the selected pattern to the musical part if the selected pattern is not similar to a pattern already in the musical part.

20. (Original) The method of claim 19, wherein selectively combining for each of said plurality of periods of time further comprises discarding the selected pattern for that period of time if the selected pattern is similar to a pattern already in the musical part.

21. (Original) The method of claim 19, wherein determining is performed using a fuzzy comparison.

22. (Original) The method of claim 19, wherein determining is performed using quantization.

23. (Canceled)

24. (Original) The method of claim 13, wherein the electronic music file comprises a Musical Instrument Digital Interface (MIDI) file.

25. (Original) The method of claim 13, wherein the electronic music file comprises events and wherein the method further comprises removing all but pre-specified events from the electronic music file prior to performing identifying and selectively combining.

26. (Previously Amended) A computer program stored on a computer-readable medium for generating a musical part from an electronic music file comprised of pitched instrumental parts, the computer program comprising instructions that cause a computer to:

generate a control stream that indicates which of the instrumental parts has a highest value for each of a plurality of a periods of time;

for each of said plurality of periods of time, select one of the instrumental parts for the period of time based on the control stream; and

output the selected instrumental part for the period of time to produce the musical part, wherein the computer program further comprises instructions that cause the computer to generate the control stream by comparing for each of said plurality of periods of time a contribution of one instrumental part for that period of time to a contribution of another instrumental part for that period of time and to generate the control stream based on a cost of switching between the one instrumental part and the other instrumental part.

27. (Original) The computer program of claim 26, wherein the computer program further comprises instructions that cause the computer to generate the control stream by examining for each period of time other periods of time defined by the electronic music file.

28. (Canceled)

29. (Canceled)

30. (Original) The computer program of claim 26, wherein the computer program further comprises instructions that cause the computer to generate the control stream by: obtaining measurement streams which include values for corresponding instrumental parts; and identifying for each of the plurality of periods of time an instrumental part in the measurement streams that has the highest value for that period of time.

31. (Original) The computer program of claim 30, wherein obtaining the measurement streams includes analyzing aspects of the musical part.

32. The computer program of claim 31, wherein the aspects include one or more of strum speed, average pitch, polyphony, loudness, and a vocal part.

33. (Original) The computer program of claim 30, wherein the computer program further comprises instructions that cause the computer to generate the control stream by merging the measurement streams to obtain a composite measurement stream, and wherein the

instrumental part in the measurement streams that has the highest value for the each period of time is identified by using the composite measurement stream.

34. (Original) The computer program of claim 26, wherein the electronic music file comprises a Musical Instrument Digital Interface (MIDI) file.

35. (Canceled)

36. (Original) The computer program of claim 26, wherein each instrumental part comprises a stream of events, each event in the stream of events having a time; stamp, and wherein the computer program further comprises instructions that cause the computer to change time stamps of events that are within a predetermined time period of each other so that the time stamps are the same.

37. (Original) The computer program of claim 26, wherein generating is performed using a chooser object and selecting and outputting are performed using a switcher object.

38. (Currently Amended) ~~A~~ The computer program of claim 26, further stored on a computer readable medium for generating a musical part from an electronic music file, the computer program comprising instructions that cause a the computer to:

for each of a second plurality of periods of time, identify a plurality of patterns in the electronic music file; and

for each of said second plurality of periods of time, selectively combine multiple of said plurality of identified patterns for that time period to produce the musical part, wherein patterns having relatively low frequencies are combined to produce the musical part before patterns having relatively high frequencies are combined.

39. (Original) The computer program of claim 38, wherein the patterns comprise individual instrumental tracks in the electronic music file.

40. (Original) The computer program of claim 38, further comprising instructions that cause the computer to selectively combine for each of said plurality of periods of time by:

- selecting one of the identified patterns;
- determining if a rhythmic complexity of the selected pattern exceeds a predetermined threshold; and
- adding the selected pattern to the musical part if the rhythmic complexity of the selected pattern does not exceed the predetermined threshold.

41. (Original) The computer program of claim 40, further comprising instructions that cause the computer to discard the selected pattern if the rhythmic complexity of the selected pattern exceeds the predetermined threshold.

42. (Original) The computer program of claim 40, wherein the rhythmic complexity of the selected pattern is determined based on musical features of the selected pattern.

43. (Original) The computer program of claim 42, wherein the musical features comprise one or more of a beat of the selected pattern, syncopated notes in the selected pattern, and proximity of notes in the selected pattern to other notes in the selected pattern.

44. (Original) The computer program of claim 38, further comprising instructions that cause the computer to selectively combine by:

- selecting one of the identified patterns;
- determining if the selected pattern is similar to a pattern already in the musical part; and
- adding the selected pattern to the musical part if the selected pattern is not similar to a pattern already in the musical part.

45. (Original) The computer program of claim 44, further comprising instructions that cause the computer for each of said periods of time to discard the selected pattern for that period of time if the selected pattern is similar to a pattern already in the musical part.

46. (Original) The computer program of claim 44, wherein determining is performed using a fuzzy comparison.

47. (Original) The computer program of claim 44, wherein determining is performed using quantization.

48. (Canceled)

49. (Original) The computer program of claim 38, wherein the electronic music file comprises a Musical Instrument Digital Interface (MIDI) file.

50. (Original) The computer program of claim 38, wherein the electronic music file comprises events and wherein the computer program further comprises instructions that cause the computer to remove all but pre-specified events from the electronic music file prior to performing identifying and selectively combining.

51. (Previously Amended) An apparatus for generating a musical part from an electronic music file comprised of pitched instrumental parts, the apparatus comprising:

a memory that stores executable instructions; and

a processor that executes the instructions to:

generate a control stream that indicates which of the instrumental parts has a highest value for each of a plurality of periods of time;

select one of the instrumental parts for the period of time based on the control stream; and

output the selected instrumental part for the period of time to produce the musical part, wherein the instructions cause the processor to generate the control stream by comparing for each of said plurality of periods of time a contribution of one instrumental part for that period of time to a contribution of another instrumental part for that period of time and to generate the control stream based on a cost of switching between the one instrumental part and the other instrumental part.

52. (Original) The apparatus of claim 51, wherein the executable instructions further comprise instructions that cause the processor to generate the control stream by examining for each of said plurality of periods of time other periods of time defined by the electronic music file.

53. (Canceled).

54. (Canceled)

55. (Original) The apparatus of claim 51, wherein the executable instructions further comprise instructions that cause the processor to generate the control stream by:
obtaining measurement streams which include values for corresponding instrumental parts; and
identifying for each of said plurality of periods of time an instrumental part in the measurement streams that has the highest value for that period of time.

56. (Original) The apparatus of claim 55, wherein obtaining the measurement streams includes analyzing aspects of the musical part.

57. (Original) The apparatus of claim 56, wherein the aspects include one or more of
strum speed, average pitch, polyphony, loudness, and a vocal part.

58. (Original) The apparatus of claim 55, wherein the executable instructions further comprise instructions that cause the processor to generate the control stream by merging the measurement streams to obtain a composite measurement stream and wherein the instrumental part in the measurement streams that has the highest value for each period of time is identified by using the composite measurement stream.

59. (Original) The apparatus of claim 51, wherein the electronic music file comprises a Musical Instrument Digital Interface (MIDI) file.

60. (Canceled)

61. (Original) The apparatus of claim 51, wherein each instrumental part comprises a stream of events, each event in the stream of events having a time; stamp, and wherein the executable instructions further comprise instructions that cause the processor to change time stamps of events that are within a predetermined time period of each other so that the time stamps are the same.

62. (Original) The apparatus of claim 51, wherein generating is performed using a chooser object and selecting and outputting are performed using a switcher object.

63. (Currently Amended) ~~An~~ The apparatus of claim 51, wherein ~~for generating a musical part from an electronic music file, the apparatus comprising:~~
a memory that stores executable instructions; and
a the processor ~~that~~ executes the instructions to:
for each of a second plurality of periods of time, identify a plurality of patterns in the electronic music file; and
for each of said second plurality of periods of time, selectively combine multiple of said plurality of identified patterns for that time period to produce the musical part, wherein patterns having relatively low frequencies are combined to produce the musical part before patterns having relatively high frequencies are combined.

64. (Original) The apparatus of claim 63, wherein the patterns comprise individual instrumental tracks in the electronic music file.

65. (Original) The apparatus of claim 63, wherein the executable instructions further comprise instructions that cause the processor selectively [combining comprises] combine for each of said periods of time by:
selecting one of the identified patterns;
determining if a rhythmic complexity of the selected pattern exceeds a predetermined threshold; and

adding the selected pattern to the musical part if the rhythmic complexity of the selected pattern does not exceed the predetermined threshold.

66. (Original) The apparatus of claim 65, wherein the executable instructions further comprise instructions that cause the processor to discard the selected pattern if the rhythmic complexity of the selected pattern exceeds the predetermined threshold.

67. (Original) The apparatus of claim 65, wherein the rhythmic complexity of the selected pattern is determined based on musical features of the selected pattern.

68. (Original) The apparatus of claim 67, wherein the musical features comprise one or more of a beat of the selected pattern, syncopated notes in the selected pattern, and proximity of notes in the selected pattern to other notes in the selected pattern.

69. (Original) The apparatus of claim 63, wherein the executable instructions further comprise instructions that cause the processor selectively combine by:
selecting one of the identified patterns;
determining if the selected pattern is similar to a pattern already in the musical part; and
adding the selected pattern to the musical part if the selected pattern is not similar to a pattern already in the musical part.

70. (Original) The apparatus of claim 69, wherein the executable instructions further comprise instructions that cause the processor for each of said periods of time to discard the selected pattern if the selected pattern for that time period is similar to a pattern already in the musical part.

71. (Original) The apparatus of claim 69, wherein determining is performed using a fuzzy comparison.

72. (Original) The apparatus of claim 69, wherein determining is performed using quantization.

73. (Canceled)

74. (Original) The apparatus of claim 63, wherein the electronic music file comprises a Musical Instrument Digital Interface (MIDI) file.

75. (Original) The apparatus of claim 63, wherein the electronic music file comprises events, and wherein the executable instructions further comprise instructions that cause the processor to remove all but pre-specified events from the electronic music file prior to performing identifying and selectively combining.

76. (Original) The method of claim 1 wherein the periods of time in said plurality of periods of time are measures of a musical piece.

77. (Original) The method of claim 1 wherein the periods of time in said plurality of periods of time are measures of a musical piece.